Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Unit #1 Study Guide

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| **Use the following to review for you test. Work the Practice Problems on a separate sheet of paper.** |
| **What you need to know & be able to do** | **Things to remember** |  |  |
| 1. Unit Conversions* There are 5280 feet in one mile
* There are 0.034 ounces in one milliliter
* There are 0.454 kg in one pound
* There are 1.6 kilometers in one mile
* There are 73 gallons in 2 barrels
* There are 1.05 quarts in one liter
* There are 4 quarts in one gallon
* There are 16 ounces in a pound.
 |  | 1. Convert 1500dg to hg.  | 2. A bowl of cereal weighs 60 oz.  How heavy is it in L? |
|  | 3. Convert 12 kilometers per second to inches per day.  | 4. You are in a car traveling that is traveling at 65 mph. How long will it take to travel to Chattanooga (150 miles away)? |
| 2. Identify Vocabulary | * # of terms
* Coefficients
* Factors
* Constants
 | 5. How many terms are in the expression 12*x*3 + 7*x*2 – 4*x* –19? | 6. What are the factors, coefficients, and constants in the expression 20*x*4 – 11*x* +3? |
| 3. Linear Models | y = mx + b* m – increase or decrease
* b – starting point
 | 7. Lucy gets paid $150 a week and $10 for every computer she sells. Write an expression that represents her weekly income. | 8. Andy wants to mail a package. It costs $4.99 plus $0.30 for every ounce the package weighs. Write an equation that represents the total cost of shipping the package. |
| 4. Exponential Models | y = abx* b – multiplier (double, triple, 500%)

a – starting point | 9. An antique car has a value of $80,000 and appreciates by a factor of 5 per year. How long will it take for the value of the car to reach $6.25 billion | 10. The population of a type of bacteria, starts with 100, and grows at a rate of 300% every day. How many will there be in 2 weeks |
| 5. Consecutive Integers | Start with x.x + (x+1) + (x+2)+...=Consecutive **EVEN/ODD**Start with x.x + (x+2) + (x+4)+...= | 11. 3 consecutive integers add up to 153. Find the three integers. | 12. Three ODD integers add up to 381. Find the integers.  |
| 6. Averages | * Add the values and x
* Divide by the number of numbers
* Set equal to the average
* Solve for x
 | 13. You are trying to save $20 a week to buy a new CD player. During the last 4 weeks you have saved $35, $15, $10, and $12. How much do you need to save this week to average $20 for the 5 weeks? | 14. Currently, you have made a 78, 83, and an 80 on your tests in math. What do you need to make on the next test in order to get an average of an 82? |
| 7. Rectangle – Find length and width | * Draw a picture
* Define your l and w
* Add all 4 sides
* Solve for both variables
 | 15. The width of a rectangle is 11 feet longer than the length. The perimeter of the rectangle is 70 feet. Find the length and the width. | 16. The length of a rectangle is nine inches more than the width. The perimeter is 34 inches. Find the length. |
| 8. Solve Exponential Equations | y = abx* Bases must be the same.
* Set exponents equal to each other.
 | 17.  | 18. $125^{2x-1}= \frac{1}{25}^{3x+1}$ |
| 9. Simplifying Exponential Expressions |  | 19. $\frac{(3m^{3}n)^{-3}m^{-2}}{-2m^{6}n^{2}}$ | 20. $\frac{2(m^{4}n)^{2}m^{-4}}{-10m^{8}n^{3}}$ |
| 10. Solve for an indicated variable | PEMDAS* Backwards, from the ground up!
 | 21. Solve for x: y = -4x + 16 | 22. Solve for L: P = 2(L + W)  |
| 11. Taxes/Discounts**TC**(stands for Total cost) | Discount:**TC** - discount%(**TC**)Taxes:**TC** + tax%(**TC**) | 22. Sue agrees to buy a monthly gym passes, and in turn receives a15% **discount**. Write an algebraic expression to represent the total cost of the monthly pass with the **discount**, if x represents the cost of each monthly pass. | 23. Sue agrees to buy a monthly gym passes with a 3% **tax**. Write an algebraic expression to represent the total cost of the monthly pass with the **tax**, if x represents the cost of each monthly pass. |